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CPTO

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Claims 1-9 (Cancelled)

claims 10-11 (Original)

10. A recombinant protease biosensor comprising
10 a. a first domain comprising at least one detectable polypeptide
 signal;
 b. a second domain comprising at least protease recognition site;
 and
 c. a third domain comprising at least one reactant target sequence;
15 wherein the first domain and the third domain are separated by the second
 domain.

11. The recombinant protease biosensor of claim 10 further comprising a fourth
domain comprising at least one product target sequence, wherein the fourth
domain and the third domain are separated by the second domain.

12. (Amended) The recombinant protease biosensor of claim [10 or] 11 further
comprising a fifth domain comprising at least one detectable polypeptide signal, wherein the fifth
domain and the first domain are separated by the second domain.

13. (Amended) The protease biosensor of claim 10[12] wherein the detectable
polypeptide signal is selected from the group consisting of fluorescent proteins, luminescent
proteins, sequence eptiopes, and co-factor requiring fluorescent or luminescent proteins.

14. (Amended) The protease biosensor of claim 10[12] wherein the detectable
polypeptide signal domain comprises a sequence selected from the group consisting of SEQ II
NOS:36, 38, 40, 42, 44, 46, 48, 50, and 52.

Claims 15-16 (Original)

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35 15. The protease biosensor of claim 10 wherein the second domain comprising a protease recognition site comprises a sequence selected from the group consisting of SEQ ID NOS:54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, and 122.

40 16. The protease biosensor of claim 10 wherein the reactant target sequence domain comprise a sequence selected from the group consisting of SEQ ID NOS:124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, and 152.

17. (Amended) A recombinant protease biosensor comprising [comprises] a sequence substantially similar to sequences selected from the group consisting of SEQ ID NO:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, and 34.

Claims 18-23 (Cancelled)

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Please add the following new claims:

24. The protease biosensor of claim 11 wherein the detectable polypeptide signal is selected from the group consisting of fluorescent proteins, luminescent proteins, sequence epitopes, and co-factor requiring fluorescent or luminescent proteins.

25. The protease biosensor of claim 12 wherein the detectable polypeptide signal is selected from the group consisting of fluorescent proteins, luminescent proteins, sequence epitopes, and co-factor requiring fluorescent or luminescent proteins.

26. The protease biosensor of claim 11 wherein the detectable polypeptide signal domain comprises a sequence selected from the group consisting of SEQ ID NOS:36, 38, 40, 42, 44, 46, 48, 50, and 52.

27. The protease biosensor of claim 12 wherein the detectable polypeptide signal domain comprises a sequence selected from the group consisting of SEQ ID NOS:36, 38, 40, 42, 44, 46, 48, 50, and 52.

28. The protease biosensor of claim 11 wherein the second domain comprising a protease recognition site comprises a sequence selected from the group consisting of SEQ ID NOS:54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, and 122.

29. The protease biosensor of claim 12 wherein the second domain comprising a protease recognition site comprises a sequence selected from the group consisting of SEQ ID NOS:54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, and 122.

30. The protease biosensor of claim 11 wherein the reactant target sequence domain comprise a sequence selected from the group consisting of SEQ ID NOS:124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, and 152.

31. The protease biosensor of claim 12 wherein the reactant target sequence domain comprise a sequence selected from the group consisting of SEQ ID NOS:124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, and 152.